HOVpfs

High Occupancy Vehicle Pooled Fund Study

Automated Vehicle Occupancy Verification Technologies

Project Fact Sheet - May 06

Purpose

High Occupancy Vehicle (HOV) and High Occupancy / Toll (HOT) lanes requires effective enforcement policies and programs to operate successfully. Enforcement of vehicle-occupancy requirements is critical to protecting eligible vehicles' travel-time savings and safety. Visible and effective enforcement promotes fairness and maintains the integrity of the facility to help gain acceptance among users and non-users.

Vehicle-occupancy verification is a principal impediment to more efficient HOV lane enforcement. Electronic toll collection, license plate recognition and a myriad of other technologies have been developed and refined in recent decades to improve the integrity of enhanced transportation systems. However the target of many of these technologies has usually been the vehicle, and not the occupants. As a result, HOV facility operators have traditionally relied on field enforcement personnel to manage occupancy violations.

Given widespread plans for development of HOV lanes in a number of metropolitan areas, improved vehicle-occupancy verification techniques urgently need to be explored. This project intends to serve as a layperson's guide towards identifying and implementing improved methods for automating occupancy monitoring, verification and enforcement.

The goal of the HOV Pooled-Fund Study (HOV PFS) is to assemble regional, state, and local agencies, and the Federal Highway Administration (FHWA) to

- **identify issues that are common among agencies;**
- **suggest projects and initiatives;**
- **select and initiate projects intended to address identified issues;**
- **disseminate results; and**
- **assist in solution deployment.**

Participating state transportation agencies include California, Georgia, Maryland, Massachusetts, Minnesota, New Jersey, New York, Tennessee, Virginia, and Washington.

Key Questions

- How do these various initiatives work?
- What obstacles do they face?
- What is the outlook for success or widespread use of these technologies?
- What technologies are on the horizon, including “pie-in-the-sky” ideas that are perhaps years away from being considered?
- What technologies, if any, have been devised, but rejected, and why?

U.S. Department of Transportation
Federal Highway Administration

Project Scope

The objective of this project is to identify, compile, and systematically evaluate concepts, methods, and technologies for automated vehicle-occupancy detection, verification and enforcement that are being researched, under development and on the horizon in the United States and abroad. Findings of this project will assist in identifying, developing, and implementing cost-effective, automated techniques for verifying and enforcing vehicle occupancy to continue offering high occupancy vehicle (HOV) preference in an effective way.

The project entails the following research and development:

- Expert review and synthesis of concepts, methods, and technologies for automated vehicle-occupancy verification. This research includes not only operational technologies, but also future implementations of concepts under development.
- Identify potential concepts and technologies that may be considered for further research and development, including in-vehicle and infrastructure integration strategies and technologies.
- Explore vehicle-occupancy verification integration with automated toll violation operations.
- Develop criteria for improved occupancy verification, with focus on functional requirements for robust, dynamic, multiple-user-group systems and techniques
- Develop guidance towards implementing automated occupancy verification systems, including addressing concerns of personal privacy, legal / jurisprudence efforts, and cost.
- Prepare a research white paper outlining research findings and recommendations.

As the primary product of this project, the research white paper will include a summarization of further research needs and next steps to a more comprehensive study to further research, development, or testing with regard to automated vehicle-occupancy detection and verification.

Project Products

In the course of the Automated Vehicle Occupancy Verification Technologies project, the Texas Transportation Institute and Battelle corporation will develop the following products:

- Research White Paper
- Project Fact Sheet
- Subject PowerPoint

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